Abstract

The present invention provides a device for digital pulse width modulation with: (a) a filter device (11) for filtering a filter input signal (10''); (b) a quantization device (13) for quantizing a filter output signal (11') of the filter device (11); (c) a PWM mapper device (15) for generating a digital PWM signal (15') from an output signal (13') of the quantization device (13); and (d) a feedback loop (17) for feeding back the digital PWM signal (15') to a loop input signal (10') and for generating the filter input signal (10'') by subtraction. The present invention likewise provides a method for digital PWM.

Figure 1

List of designations

1 input signal
10 interpolation device, for example interpolation filter
10' loop input signal
10'' filter input signal
11 filter device, in particular loop filter
11' filter output signal
12 filter sampling rate
13 quantization device
13' output signal of the quantization device
14 sampling rate of the quantization device
15 PWM mapper
15' digital PWM signal
16 amplification device and/or filter device, in particular post-filter downstream of amp.
17 control loop
17' parallel similar control loop
18 load
19 filter device (error feedback structure)
20 limiting device of an integrator
21 control loop
20' loop signal
20 control loop
23 noise shaper (sigma-delta modulator)
24 pulse width modulation (PWM)
25 operating voltage
26 A/D converter
27 digitized operating voltage signal

I, I1-I4 integrators
a_0-a_4 coefficients
α, β factors
+ summation point
- subtraction